Rate
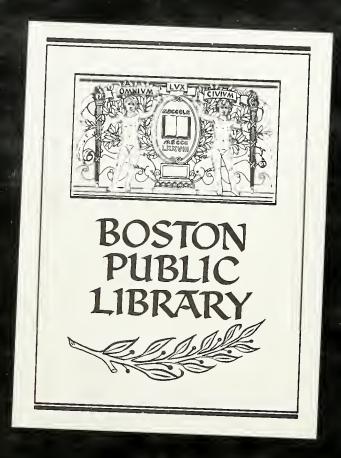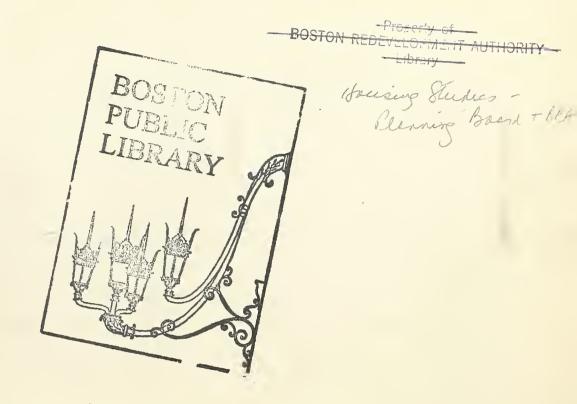THE ~~ROLE~~ OF DETERIORATION OF BOSTON'S HOUSING

Service Studies Section
Research Division
Boston City Planning Board
October   1958

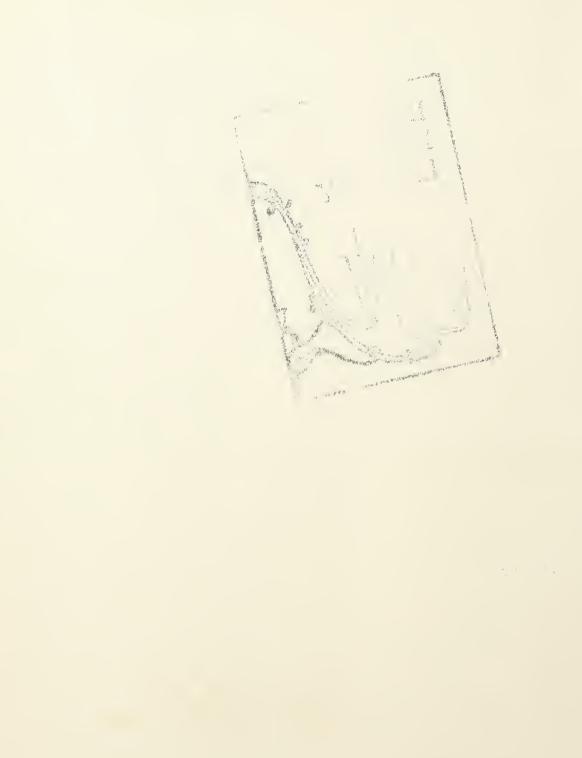# TABLE OF CONTENTS

FROM: Brigitte Orent, Research Division

TO: Sid Hodges, Programming Division

SUBJECT: How much renewal action is required in Boston in
           order to reduce or eliminate substandard housing?

_. At what rate is the city deteriorating?

    A. Propositions:

        1. The rate of deterioration for units built in a
            given time period is accelerating and not con-
            stant. In other words, a house deteriorates
            faster as it gets older.

                Problem: No census correlates age and sub-
                standard condition so that the per cent of
                units of any given age period which are sub-
                standard has had to be estimated.

        2. In order to establish a rate you need to measure
            the change in similar items between two dates.

                Problem: The only two censuses giving in-
                formation on housing, 1940 & 1950, have sig-
                nificantly different definitions of sub-
                standard so that the item "needing major re-
                pairs" in 1940 cannot be compared with "dila-
                pidated" in 1950 to determine a rate.*

                When this is attempted, the rate of increase
                of substandard units (1500 per year for ten
                years) if carried backward, theoretically
                would have no substandard units in Boston
                prior to 1928 - obviously not so. (19,000
                in 1940 needing major repairs; deduct
                1500/yr.; in twelve years no substandard).

*"No reliable data have been obtained to compare the relationship
between the 'major repairs' category and the 'dilapidated' cate-
gory. However, it is the opinion of a number of qualified hous-
ing economists that the 1950 concept of 'dilapidation' will
generally provide a smaller count of poor housing than the 1940
concept of 'major repairs.' The two terms differ significantly,
and the 1940 and 1950 results on condition are not comparable."

1950 United States Census of Housing, Massachusetts,
    General Characteristics, p. IX.

3. There is a relationship between age and
    substandardness.

    a. This relationship is assumed in the Report
        Of the Urban Renewal Study Board to Mayor
        D'Alesandro, Jr., Baltimore, Maryland, Sep-
        tember 1956. (This Report and its Appendix
        were guides to this study; but the method
        employed in the Report can be used only from
        1950 forward, while the method outlined be-
        low may be applied from any starting point
        in time).

    b. Clearly other factors in addition to obsol-
        escent or deficient buildings determine blight:
        incompatible land uses, inadequate community
        facilities, deficient street patterns, over-
        crowding of the land, etc. In this study only
        substandard dwellings were considered.

    c. Furthermore, not all old dwellings are sub-
        standard; the percentages in Table I reflect
        this fact, Nonetheless, older ones tend to
        be more deteriorated than newer ones.

    d. Finally, fairly good information on the age
        of dwellings is available in the 1940 census.[2]

B. Method used to develop Table I: Total number of

    Dwelling Units & Substandard Units with NO RENEWAL ACTION.

    (Essentially the cohort-survival method applied to houses

    instead of school children).

    1. The starting point was the age distribution given
        in the 1940 census. Since 87.2% of the total du's
        reported year built, the not-reporting units
        (26,500) have been distributed in proportion to
        the frequency of those reporting.

[2] Despite Twichell's comment:
"Age of dwellings (year built) has been incompletely reported in
most areas, is of uncertain accuracy at best, and in some places
has been found to have little correlation with other problems."
Alan Twichell, "Measuring the Quality of Housing" p.23, in Urban
Redevelopment: Problems & Practices, ed. Coleman Woodbury, 1953.

2. Figures were rounded to the nearest 100 and then all age brackets were reduced by a 100 to bring the total closer to the actual (census) total of 211,500.

3. The only empirical clue to the per cent of dwellings deteriorated for a given age period was derived as follows: From the 1950 census it was possible to select census tracts (19 in all) in which 50% or more of the units were built 1920 or later.

   The median and average per cent "dilapidated and/or no private bath" for these nineteen tracts was 1.3% and 6.4%, respectively.

4. The per cents deteriorated for the given age periods were "fudged in," with only the above clue as a guide, so that the total number of deteriorated units in 1940 and 1950 approximated the number given in the census as "Needing major repairs" (1940 Census: 10.1%), "dilapidated" (1950 Census 15.5%) in the respective years.

   This "fudging" took into account the accelerating aspect of deterioration.

   The percent deteriorated in 1940 & 1950 according to Table I, 12.1% and 16.7% respectively, is slightly higher than the census percentages, therefore, a slightly higher standard of deterioration is reflected in the Table than in the censuses.

5. Conversions were added, 1,000 each decade in each of four age brackets: 20 - 30; 30 - 40; 40-50; 50-60. 4000/decade was based on an average number of 400 legal conversions per year 1952-1957.

6. Demolitions were based on an average annual of 800 plus 50 legal reverse conversions 1952-1957 : (850 x 10 years = 8,500 per decade). Based on estimates in Baltimore, 46% of these will be for capital improvements (including public housing) and 54% will be for redevelopment clearance. Only the former 46% were removed from the housing stock in this analysis (3,940 per decade) since the purpose of the analysis was to determine the other 54%, i.e. how many must be cleared for redevelopment.

The 3,900 were deducted from the last three age brackets - 1300 each per decade.

7. 9,000 dwelling units were added on the top for new construction. This assumes that levels of prosperity and construction will continue as they have the past five years. (Average annual new construction 1952-1957:890)

8. Beginning with 1940, dwellings in each age bracket were brought forward or carried backward, subtracting demolitions and adding new construction and conversions for the years after 1940 and reversing the procedure for the years before 1940.

9. The total number of dwelling units for the period 1900-1930 can be estimated by dividing the total population for these census years by an estimated number of persons per dwelling, as follows:

    1900 - 5.0 persons
    1910 - 4.5   "
    1920 - 4.3   "
    1930 - 4.0   "

    These estimates are indicated in parentheses on Table I.

10. "Dwellings built before 1860" is an open-ended category. In 1900 some in this category were only 40 years old; thus the per cent deteriorated in this category has been adjusted for the years before 1940.

II. How many dwellings will require special treatment?

    A. Propositions:

        1. Dwellings which are substandard and over 70 years old should be demolished.[4]

The National Housing Agency pamphlet Housing Costs, 1944, refers to 40 years as a "reasonable average effective life" of homes (p.27) but adds that "... we have, on the average over the past century, been producing houses which have an actual physical life of from 60 to 80 years, unless unusual maintenance measures are taken." (p. 29) The Housing and Home Finance Agency pamphlet How Big Is The Housing Job, 1951, suggests that the number of dwelling units requiring replacement is roughly comparable to the number of dwelling units 75 years old or over."

Report of the Urban Renewal Study Board to Mayor D'Alesandro, Baltimore, Maryland, September, 1956. p. 21

2. Dwellings which are <u>substandard and less than 70 years old</u> should be <u>rehabilitated</u>.

3. All dwellings which are <u>not</u> substandard should be conserved.

B. Methods used to develop Table II: <u>Dwelling units by type of Treatment</u>

<u>Needed</u>.

1. Table II was developed from Table I. An example will best illustrate how the figures were obtained: note that deterioration is cumulative; that is, by the time houses are 20-30 years old 3% will have deteriorated. If some of these substandard units are patched up before this age period, less will be substandard.

2. Example:

<u>Age Period</u> .   <u>Remarks</u>

1 - 10.......Moving on a diagonal, begin with the
              8,800 units built in 1940. None de-
              teriorate in the <u>first</u> decade.
10 - 20........88 of the 8,800 deteriorate in this
              decade, but are rehabilitated in the
              1950's. Thus 8,800 standard units
              plus 1,000 conversions move on to the
              1960's.
20 - 30.......Of these 9,800 units 88 have already
              been patched up, leaving (294-88) 206
              to be rehabilitated in the 1960's.
30 - 40.......Add 1,000 for conversions. 6% of the
              10,800 units would be bad if nothing
              had been done heretofore, but 38 and
              206 have already been treated; this
              leaves (648 - 88 - 206 = 354) 354 units
              to be treated in the 1970's.
40-50;50-60;60-70   Same process.
70-80.........Since substandard dwellings 70 years
              old and older are to be demolished,
              these deteriorated units were sub-
              tracted from the total supply in that
              age bracket passing on to the next
              decade.
80 and over..The total number in this category was
              obtained, for example - 16,800 in 1950,
              by adding 10,300 and 16,400 (those 70-
              80, and 80 years and over in the pre-
              vious decade) and subtracting the sub-
              standard dwellings of the 1940's 1,650
              and 8,200 which were demolished.

II. The Current Picture

    A. What has happened up to 1958?

        1. Assume nothing done in 1940's: then by 1950,

            13,814   units needed to be rehabilitated
            20,510   "   "   " " demolished
            34,324   "   were deteriorated
            (this corresponds roughly to the 33,000
            dilapidated and/or no private bath in
            1950 census).

        2. 1950-1958

            a. Demolition

            20,510 need to be demolished 1950
minus   6,400 (800 du's dem./yr.)
            14,110 need to be dem. 1958

            b. Rehabilitation

            13,814 need to be rehabilitated
minus   5,000
            8,814 need to be rehabilitated 1958
                 (10,000 Federal public housing
                 units in Boston. Assume 1:1
                 ratio construction for demolished.
                 Assume half the destroyed units
                 were from the "to be demolished"
                 category amd half from the "to be
                 rehabilitated" category).

            c. New Additions

           222,000 units 1950
            10,400   "   added (av. annual of 900 new con-
           232,400   struction and 400 added by
                       conversion)

        3. "1958 Picture"

           232,400 units
             8,814 need to be rehabilitated
          14,110   "   " " demolished

                 Note: This does not take into
                 account units becoming substandard
                 1950-58. The "1960 Picture" picks
                 them up, however.

B. "The 1960 Picture"

<pre>
        Total   235,000 (232,400 plus 1300 for two years=
        Conservation 191,470   235,000)
        Rehab.   17,200 (8,314 plus 9,105 = 17,919)See
           `.   -   ) Table II, 1960
        Demol.   26,330 (14,110 plus 12,220 = 26,330)
                               See Table II, 1960.
</pre>

Since no special action programs will probably take place
in the next two years beyond normal rehabilitation and
demolition (assumed 1,000/year for each category), there
will be a hold-over into the 1960-1970 decade as follows.

> Rehabilitation 15,200

> Demolition   24,330

V. How deteriorated should Boston be?

Alternative twenty- and forty- year programs.

A. Total future inventory

> Estimated population: 750,000
>   (1950: 801,444)
> Estimated persons per dwelling unit. 3.0
>   (1950: 3.1)
> Total number of dwelling units required: 250,000
>   (1950: 222,047)

This projection applies to all six of the following
programs.

B. Twenty year programs (1980)

1. Action required in order to have <u>no deteriorated
    units by 1980.</u>

a. Treatment required by decades:

	1960-70	1970-80	by 1980
Total du's	235,000[a]	246,575	250,000
Conservation	170,827	213,493	
Rehabilitation	23,113	6,447	
Demolish	41,060	26,635	
Addition[b]	11,575[c]	11,575	

Notes:
(a) Introducing this "real" total in place of the
     212,000 indicated on Table II for 1950 should
     modify the rehabilitation and demolition cate-
     gories. This has not been done - not worth it.
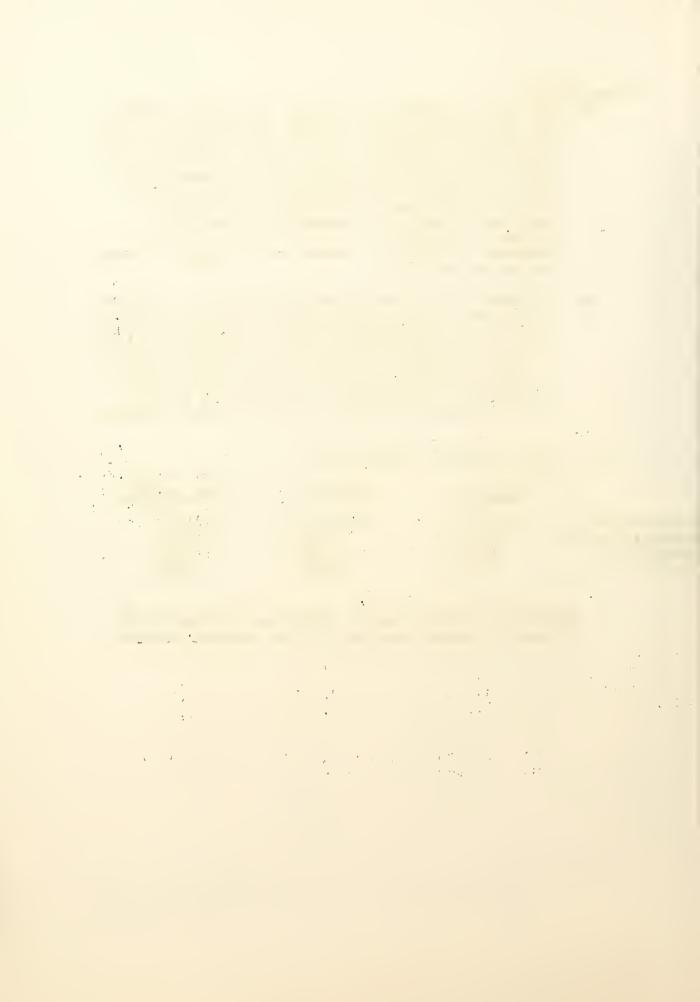
Notes Cont'd.

    (b) In all the following tables, "addition" refers
         to units which must be added in addition to the
         13,000 units added to the housing stock by nor-
         mal market operations each decade. (900 by new
         construction; 400 by conversion: annually).
         Thus, altogether 24,575 units must be added to
         the existing stock each decade. The 13,000
         have been taken into account in developing
         Tables I and II.
         Remember: "addition" means units beyond "normal"
         market operations.

    (c) By 1980 we will be 46,360 units short of 250,000
         if all units requiring rehabilitation or demoli-
         tion are treated by that time. (250,000-203,640=
         46,360) By using 235,000 instead of 211,790 as
         a total inventory in 1960 we are 23,210 ahead of
         schedule. 46,360 minus 23,210 = 23,150 units
         which need to be added in addition to normal
         market operations to get 250,000 units by 1980.

    b. Annual treatment: 0%, 1980.

	1960-70	1970-30	Steady program 20-yr. period
Conservation	170,827	213,493	192,150
Rehabilitation	2,311	644	1,477
Demolition	4,106	2,663	3,384
Add.	1,157	1,157	1,157

These two decades can be added and divided by 20
to make a steady program for the 20-year period.

2. Action required in order to have only 5% of the dwelling units in 1980 deteriorated.

    a. Treatment required by decades

	1960-70	1970-80	1980
Total du's	255,000	246,575	250,000
Consv.	179,190	217,645	237,500
Rehabilitation	20,010	5,240	1,500
Demolition	35,800	23,690	11,000
Add.	6,315	8,630	

ces:

    a. 12,500 (5%) need not be treated by 1980.
97,200 (needing treatment in Program 1) minus
12,500 = 84,700 that need to be treated. Divided
proportionately (see Program 1)

        Reb: 23 6) gives the above distribution
        Dem: 41 27)

    b. Add.: (1) 41,060 - 35,800 (what should have been
minus what actually was demolished) = 5,260 (in
need of demo. but still used)
11,575 - 5,260 = 6,315 (new construction needed
minus units not demol. = units needed)

        (2) 26,635 - 23,690 = 2,945
            11,575 - 2,945 = 8,630

    b. Annual treatment: 5%, 1980.

	1960-70	1970-80	Steady Program
Consv.	179,190	217,645	198,410
Rehabilitation	2,001	524	1,262
Demolition	3,580	2,369	2,974
Add.	631	863	747

3. Action required to hold the line at <u>15% of the dwelling</u>
    <u>units in 1980 deteriorated.</u>

    a. Treatment required by decades

	1960-70	1970-80	1980
Total du's	255,000	246,375	250,000
Conservation	195,600	226,275	212,500
Rehabilitation	14,200	3,700	7,100
Demolition	25,200	16,600	30,400
Add	none (c)	1,540	

Notes:

a. 97,200 - 37,500 = 59,700 divided proportionately:

Rehab.	23	6
Demo.	41	27

b. Add:
    (1) 41,060 - 25,200 = 15,860
         15,860 - 11,575 = 4,285

    (2) 26,635 - 16,600 = 10,035
         11,575 - 10,035 = 1,540

c. Instead of adding 13,000, the market needs to add <u>only</u>
    (13,000 - 4285) = <u>8,715</u> in the decade and no addition-
    al units need be added because of redevelopment.
    For the twenty year period as a whole the market must
    add (8,715 plus 13,000 equals) 21,715.

b. Annual Treatment: 15%, 1980

			Steady
	1960-70	1970-80	Program
Conservation	195,600	226,275	210,930
Rehabilitation	1,420	370	890
Demolition	2,520	1,660	2,090
Add.	-	154	77

C. Forty-year programs (year 2000)

    1. Action required to have <u>no deteriorated units by 2000.</u>

        a. Treatment required by decades.

	1960-70	1970-80	1980-90	1990-2000	2000
Total du's	235,000	231,453(a)	225,123	208,888	250,000
Conservation	170,827	198,371	187,276	172,364	
Rehabilitation	23,113	6,447	4,110	2,915	
Demolition	.41,060	26,635	33,737	33,609	
Add	21,483(b)	21,483	21,483	21,483	

Notes:

        a. 209,970 (1970 total Table II) + 21,483 (added
           above market) = 231,453

        b. 250,000 - 164,068 (2000 total Table II) equals
           85,932 divided by 4 decades equals 21,483/decade.

        b. Annual Treatment; 0%, 2000

	1960-70	1970-80	1980-90	1990-2000	Steady Program
Conservation	170,827	198,371	187,276	172,364	182,200
Rehabilitation	2,311	644	411	291	914
Demolition	4,106	2,663	3,373	3,360	3,375
Add	2,148	2,148	2,148	2,148	2,148

Notes:

The three programs for 1980 and the three for 2000 are not com-
pletely comparable. Since 250,000 units are the end of both the
1980 and the 2000 programs, in the 2000-programs the total inven-
tory by 1980 is less than 250,000.

The two annual treatment programs for 0% by 1980 and 0% by 2000
are the same in the 1960 to 1980 decades. The 2000 program will
require action beyond 1980 because dwellings continue to slip
down. At the same time that planned and conservation practices
may improve sufficiently to prevent some of the deterioration,
standards will probably have risen to offset any gain.

2. Action required in order to have only <u>5% of the dwelling units in 2000 deteriorated</u>

    a. Treatment required by decades.

	1960-70	1970-80	1980-90	1990-2000	2000
tal du's	235,000	231,453	225,123	208,888	250,000
nsv	175,500	201,683	189,703	174,398	
habilitation	21,400	5,570	3,720	2,790	690
molition	38,100	24,200	31,700	31,700	11,810
d	18,523	19,048	19,446	19,574	

Notes:

    a. 171,626 (total needing treatment by 2000) minus
        12,500 = 159,126 divided proportionately:
             Rehab. 23   6   4   3
             Demo.   41 26 33 33

    b. Add:
        1. 41,060 - 38,100 = 2,960
            21,483 - 2,960 =18,523

        2. 26,635 - 24,200 = 2,435
            21,483 - 2,435 =19,048

        3. 33,737 - 31,700 = 2,037
            21,483 - 2,037 =19,446

        4. 33,609 - 31,700 = 1,909
            21,483 - 1,909 =19,574

    b. Annual Treatment; 5%, 2000

	1960-70	1970-80	1980-90	1990-2000	Steady Program
nsv.	175,500	201,683	189,703	174,398	185,310
habilitation	2,140	557	372	279	1,511
molition	3,810	2,420	3,170	3,170	3,142
d	1,852	1,904	1,944	1,957	1,914

7. Treatment required in order to hold the line at <u>15% of the</u>

   <u>dwelling units in 2000 deteriorated</u>

   a. Treatment required by decades

	1960-70	1970-80	1980-90	1990-2000	2000
Total du's	235,000	231,453	225,123	208,888	250,000
Cons.	184,600	205,973	195,693	180,248	
Rehabilitation	1,000	4,680	3,130	2,340	3,000
Demolition	32,400	20,800	26,300	26,300	34,500
Add	12,823	15,648	14,...6	14,174	

Notes:

a. 171,626 - 37,500 = 134,126 divided proportionately

   Rehab: 23   6   4   3

   Dem.: 41   26   33   33

b. Add

   1. 41,060 - 32,400 = 8,660   3. 33,737 - 26,300 = 7,437
      21,483 - 8,660 = 12,823   21,483 - 7,437 = 14,046

   2. 26,635 - 20,800 = 5,835   4. 33,609 - 26,300 = 7,309
      21,483 - 5,835 = 15,648   21,483 - 7,309 = 14,174

b. Annual treatment : 15%, 2000

	1960-70	1970-80	1980-90	1990-2000	Steady Program
Cons.	184,600	205,973	195,693	180,248	191,650
Reh.	1,800	468	313	234	703
Dem.	3,240	2,080	2,630	2,630	2,645
Add	1,282	1,564	1,404	1,417	1,417

V. SUMMARY

Annual treatment required in steady programs, beginning 1960.

Assumed level of deterioration	0%		5%		15%	
Year	1980	2000	1980	2000	1980	2000
Conservation	192,150	182,200	198,410	185,310	210,930	191,650
Rehabilitation	1,447	914	1,262	1,511	890	763
Demolition	3,384	3,375	2,974	3,142	2,090	2,645
Addition to stock beyond normal market	1,157	2,148	747	1,914	77	1,417
Addition through market	1,300	1,300	1,300	1,300	1,035 (a)	1,300*
Total addition	2,457	3,448	2,047	3,214	1,162	2,717

Notes:

a. See note (c) in Section IV B3
   21,715 in two decades
   8,715 in first decade because so little demolition
   13,000 in 2nd decade

* (a) does not apply because more new units are needed each decade
   to have 250,000 by 2000 than by 1980

VI.

A. Comments, limitations, and criticisms.

1. "Deteriorated" and "substandard" are used interchange-
    ably. Neither has been defined. They are slightly
    more liberal definitions of poor housing than census
    definitions "needing major repairs" (1940) and "dil-
    apidated" (1950).

2. This study assumes that the current census standards
    of the conditions of housing will continue. It is
    well-known that standards of living and housing have
    been rising. By 1980 or 2000 they may be so much
    higher that more units than indicated would be sub-
    standard. This is likely to be the case if another
    assumption, namely continued national prosperity,
    raises incomes and spending power.

3. Really the key to the whole study is the correlation
    between age and substandardness. It was not possible
    to test this correlation empirically or statistically
    since no data was available. The study assumes the
    probability that an increasing number of dwelling
    units of any given total number will become deterior-
    ated as time passes. This means that factors devel-
    oping with time, such as obsolescence, are considered
    more significant than lack of maintenance, for example.

4. Construction activity in the past five years has been
    projected for a forty-year period when construction
    is known to be cyclical.

5. Right and the extent of renewal action required is
    more extensive than individual units. Standard units
    in blocks with more than 50% of the units substandard
    were included in the Baltimore Report in the total
    number of units requiring treatment. This study has
    limited itself strictly to the substandard units
    themselves, paying no heed to those which must be in-
    cluded in any renewal program because of their prox-
    imity to deteriorated structures. On the other hand,
    since this study is concerned with the city as a
    whole, the per centages of deterioration applied to
    age brackets reflect deterioration due to proximity.
    Only in the analysis of specific areas would standard
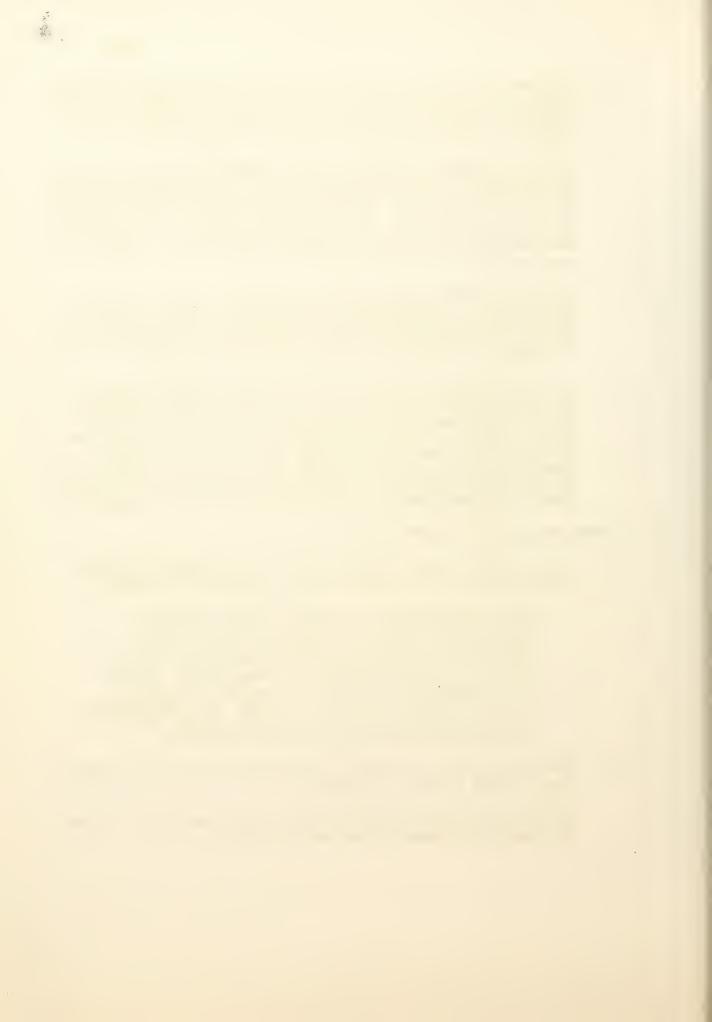   units need to be counted as well.

6. Any "steady program" may not achieve the desired results because leaving units which need treatment <u>un</u>treated in the early decades may mean that more need t<u>o</u> be demolished in subsequent years than are scheduled.

7. The correlation between age and condition does not take into account the varying rates of obsolescense or durability of different building materials, dwelling types, and site standards. For instance, small, free standing, brick dwellings may continue to be standard longer than wooden three-deckers on crowded lots built in the same age period.

8. Note that this study deals in dwelling units and not structures. The number of structures which need treatment is considerably less, of course; however, non-residential structures would also require renewal action in addition to those containing dwelling units.

9. As an indication of the order of magnitude, there are 18,870 dwelling units in the Roxbury renewal area of which 1,795 were dilapidated and/or without private bath in 1950. There are about 6,000 dwellings in the Geneva-Talbot area. Assuming the 1800 dilapidated dwellings in the Roxbury area are 70 or more years old, their demolition does not even take care of the annual demolition required to reach the 15% in 1980 mark.

B. Questions raised by the study.

1. What is the cost of each of the six programs to the home-owner, to the city, to the Federal government?

> The cost question requires further study. But accept, just to indicate the order of magnitude, from the Baltimore Report (appendix 1) the approximately $4000 per dwelling unit rehabilitated or demolished. Then, for example, in order to have 5% deterioration by 1980 would cost a total of $338,880,000 or $17 million annually; 5% by 2000, total $744,480,000 or $18.6 million annually.

2. How would units be added to the housing stock by other than normal market operations?

Does this mean an expansion of public housing? If so, in what form, under whose aegis, etc.?

Vacant buildable land within Boston is rapidly dis-
appearing. Hyde Park, Mattapan, and 'est Roxbury,
areas in which new construction has occurred in the
last ten years, will soon be filled up. Where will
the "normal market operations" take place in the
future? Is the projection of 900 new units annually
without government action reasonable?. Or must all
new buildings in the near future occur in renewal
areas with subsidy?

Furthermore, this quantitative study makes no refer-
ence to dwelling types. Can the kind of housing
which the consumer demands be built under "normal
market operations" in Boston in the future?

3. What about all the usual redevelopment problems, e.g.
relocation under such huge programs?

> The relocation load of any of these programs
> would be stupendous. "Additions" would absorb
> some of the relocated families; but on the
> Summary sheet, the annual demolitions are
> greater than the total additions to the stock.
> The Baltimore Report (p. 22) includes in its
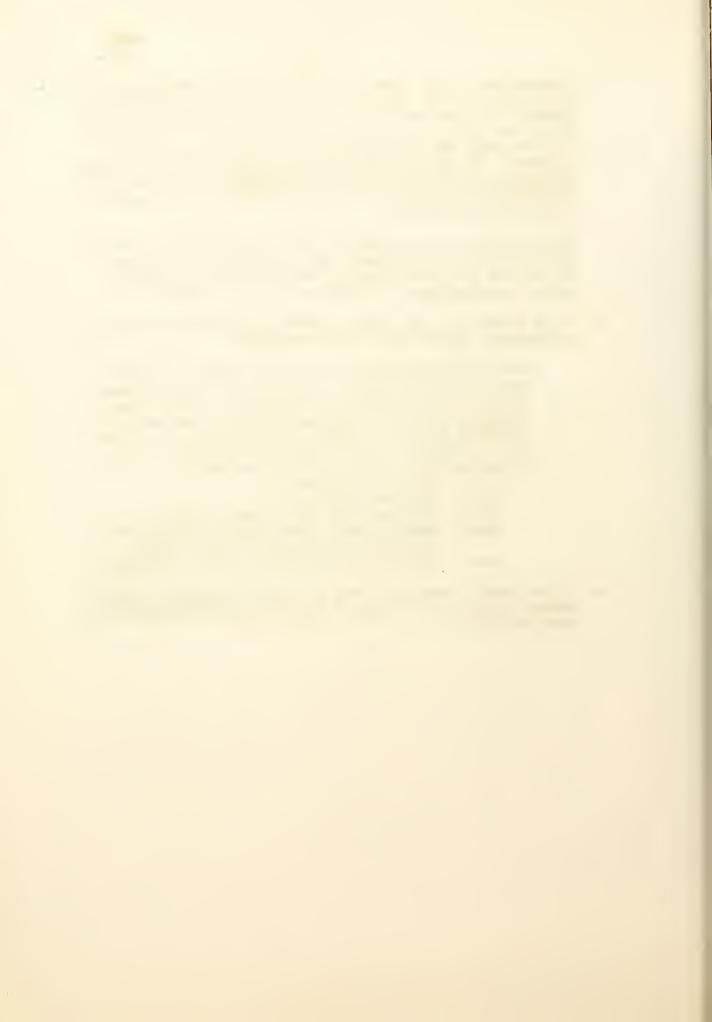> calculations of the Relocation Load,
> > du's demolished
> plus reverse conversions
> plus 10% doubling up in above units
> plus displacement from rehabilitated units
> involving substantial rent rises.
> plus displacement due to code enforcement.

4. If we don't carry out any of these programs, except
maybe "holding the line," what are the consequences
for Boston?

November 5, 1958 discussion with Sid Hodges

1. Although dilapidated units may be an adequate measure
   in the aggregate for the city as a whole since the per
   centages of dilapidation should take care of all dil-
   apidation, when you analyse an area smaller than the
   whole - any area - there are bound to be standard units
   requiring demolition because of their proximity to sub-
   standard units. (In Baltimore, blocks with more than
   50% of the units substandard were considered completely
   substandard). Thus, the estimates developed in this
   study, although valid within its limitations, are too
   low, too conservative in terms of the actual treat-
   ment that will be required in areas throughout the city.
   When it comes time for an action program, many standard
   units will also require clearance due to their prox-
   imity to substandard ones.

2. It is not wise to release bits of information without
   interpretation and apart from a fully developed program.
   These estimates may be too high in terms of a realizable
   program, they may be too low in terms of actual need.
   The cost of remedying the situation may also seem out
   of all proportion unless it is evaluated carefully, for
   instance, in light of the local contribution that can
   be made through capital improvements, etc. We should
   not expose need without indicating the when and how of
   meeting it.

   The federal census definition of substandard may also
   be questionable in view of the fact, e.g. that in the
   West End 20% of the units were defective by census
   definition, when in the end actually 80-90% were found
   deficient.

TABLE I. Total Dwelling Units and Substandard Dwelling Units with NO RENEWAL ACTION

Legend: — total   v substandard

Age of D.U. in years	Per Cent Estimated Deteriorated	Per Cent Constructed 1940 Data	Year Built 1940 Data	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000
1 - 10	0	4.2	1930-40	28,700 / 0	44,800 / 0	31,400 / 0	33,100 / 0	8,800 / 0	9,000 / 0	9,000 / 0	9,000 / 0	9,000 / 0	9,000 / 0	9,000 / 0
10 - 20	1	15.2	1920-30	13,900 / 139	28,700 / 287	44,800 / 448	31,400 / 314	33,100 / 331	8,800 / 88	9,000 / 90	9,000 / 90	9,000 / 90	9,000 / 90	9,000 / 90
20 - 30	3	15.3	1910-20	12,400 / 372	14,900 / 447	29,700 / 891	45,800 / 1,370	32,400 / 972	34,100 / 1,023	9,800 / 294	10,000 / 300	10,000 / 300	10,000 / 300	10,000 / 300
30 - 40	6	22.1	1900-10	10,900 / 654	13,400 / 804	15,900 / 954	30,700 / 1,842	46,800 / 2,808	33,400 / 2,004	35,100 / 2,106	10,800 / 648	11,000 / 660	11,000 / 660	11,000 / 660
Open-ended built before 1860														
40 - 50	10	15.0	1890-1900 (30)	19,300 / 5,790	11,900 / 1,190	14,400 / 1,440	16,900 / 1,690	31,700 / 3,170	47,800 / 4,780	34,400 / 3,440	36,100 / 3,610	11,800 / 1,180	12,000 / 1,200	12,000 / 1,200
50 - 60	20	8.5	1880-90 (35)		20,300 / 7,105	12,900 / 2,580	15,400 / 3,080	17,900 / 2,240	32,700 / 6,540	48,890 / 9,780	35,400 / 7,080	37,100 / 7,420	12,800 / 2,560	13,000 / 2,600
60 - 70	25	7.0	1870-80 (40)			19,000 / 7,600	11,600 / 2,900	14,100 / 3,525	16,600 / 4,150	31,400 / 7,850	47,500 / 11,875	34,100 / 8,525	35,800 / 8,950	11,500 / 2,875
70 - 80	45	5.0	1860-70 (47)				17,700 / 8,319	10,300 / 4,550	12,800 / 5,760	15,300 / 6,885	30,100 / 13,545	46,200 / 20,790	32,800 / 14,760	34,500 / 15,525
80 & over	50	7.8	1860 & before					16,400 / 8,200	25,400 / 12,700	36,900 / 18,450	50,900 / 25,450	79,700 / 39,850	124,600 / 62,300	156,100 / 78,050
Total dwelling units				85,200	134,000	168,100	202,600	211,500	220,600	229,700	238,800	247,900	257,000	266,100
Total number deteriorated				6,955	9,833	13,913	19,515	25,754	37,037	48,875	62,598	78,815	90,820	101,300
% deteriorated				8.1	7.3	8.2	9.6	12.1	16.7	21.2	26.2	31.7	35.3	38.0
No. becoming deteriorated in prev. 10 yrs				2,928	4,080	5,602	6,239	11,283	11,838	13,723	16,217	12,005	10,480	
(Total dwelling units based on census population)				(112,000)	(150,000)	(172,000)	(195,000)							

Table II: Dwelling Units by Type of Treatment Needed

Age of dwelling Unit in years	Per cent deteriorated		1900	1910	1920	1930	1940	1950	1960	1970	1980	1990	2000	
1-10	0	Total	28,700	44,800	31,400	33,100	8,800	9,000	9,000	9,000	9,000	9,000	9,000	Total
		Rehab.	0	0	0	0	0	0	0	0	0	0	0	Rehabilitated
10-20	1	Total	13,900	28,700	44,800	31,400	33,100	8,800	9,000	9,000	9,000	9,000	9,000	
		Rehab.	139	287	448	314	331	88	90	90	90	90	90	Rehabilitated
20-30	3	Total	12,400	14,900	29,700	45,800	32,400	34,100	9,800	10,000	10,000	10,000	10,000	
		Rehab.	372	308	604	922	658	692	206	210	210	210	210	Rehabilitated
30-40	6	Total	10,900	13,400	15,900	30,700	46,800	33,400	35,100	10,800	11,000	11,000	11,000	
		Rehab.	654	452	507	951	1,438	1,032	1,083	354	360	360	360	Rehabilitated
40-50	10	Total	19,300	11,900	14,400	16,900	31,700	47,800	34,400	36,100	11,800	12,000	12,000	
		Rehab.	5,790	535	635	733	1,328	1,972	1,436	1,504	532	540	540	Rehabilitated
50-60	20	Total		20,300	12,900	15,400	17,900	32,700	48,800	35,400	37,100	12,800	13,000	
		Rehab.		1,315	1,390	1,540	550	3,370	4,980	3,640	3,810	1,380	1,400	Rehabilitated
60-70	25	Total			19,000	11,600	14,100	16,600	31,400	47,500	34,100	35,800	11,500	
		Rehab.			495	320	445	1,910	1,310	2,115	1,445	1,530	315	Rehabilitated
70-80	45	Total				17,700	10,300	12,800	15,300	30,100	46,200	32,800	34,500	
		Demol.				719	1,650	2,235	2,735	5,695	8,915	6,235	6,575	Demolished
80 & over	50	Total					16,400	16,850	18,990	22,070	35,440	55,005	54,068	
		Demol.					8,200	18,425	9,485	11,035	17,720	27,502	27,034	Demolished

Total number of dwelling units:

	1940	1950	1960	1970	1980	1990	2000
to be conserved:	211,500	212,050	211,790	209,970	203,640	187,405	164,068
to be rehabilitated	196,900	192,326	190,465	185,327	170,558	149,558	127,544
to be rehabilitated	4,750	9,064	9,105	7,913	6,447	4,110	2,915
to be demolished	9,850	10,660	12,220	16,730	26,635	33,737	33,609

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